Self-leveling Rotary Laser FRE202

Service Manual

1. Instrument & Accessories

Main body

Remote

Charger

Detector & Clamp

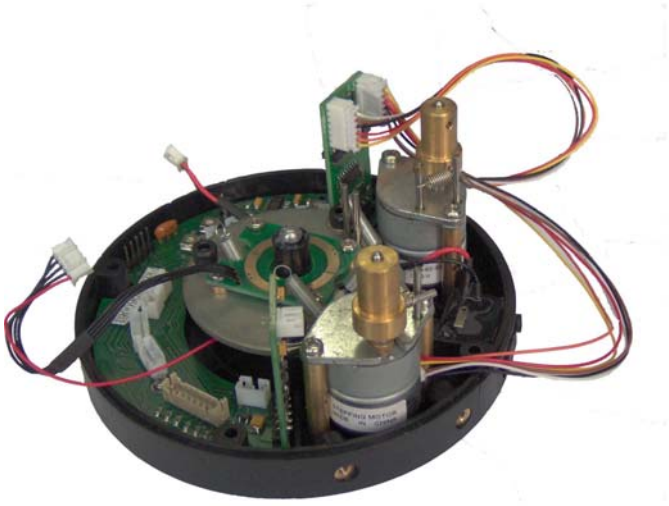
This set of product include Main body(FRE202)、Detector(FRD100)、Clamp、Remote、Charger(FC101).

5# rechargeable battery and dry battery are all available for the instrument. (Take out the batteries after loosing the cover screw of battery case.)

2. Structure

Top-cover Set

Shell Set

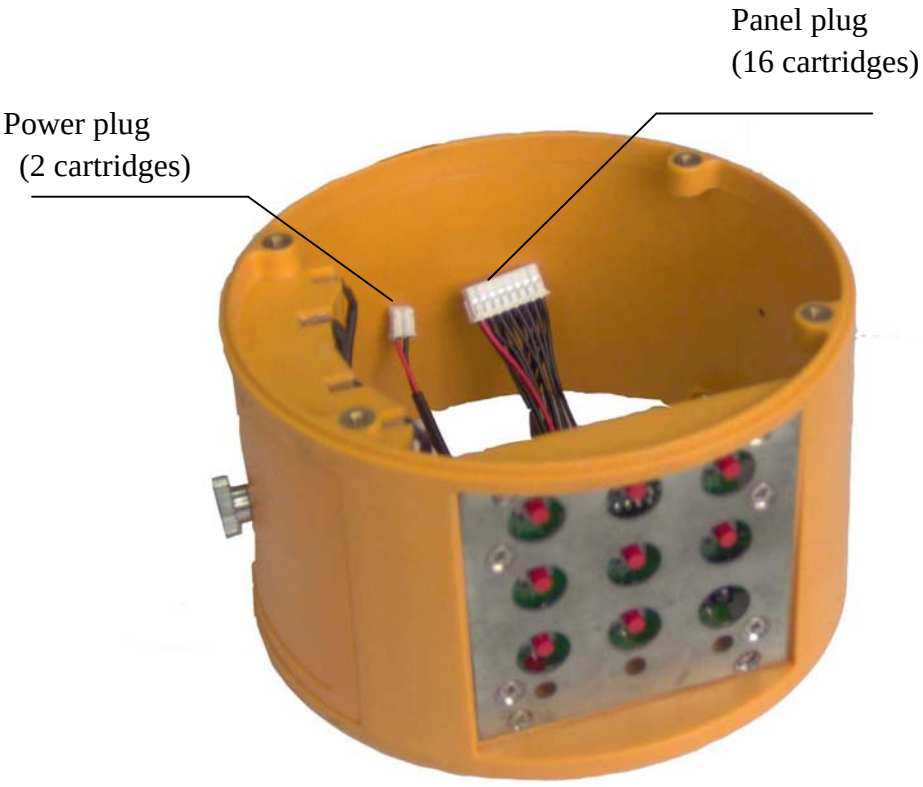


Underpan Set

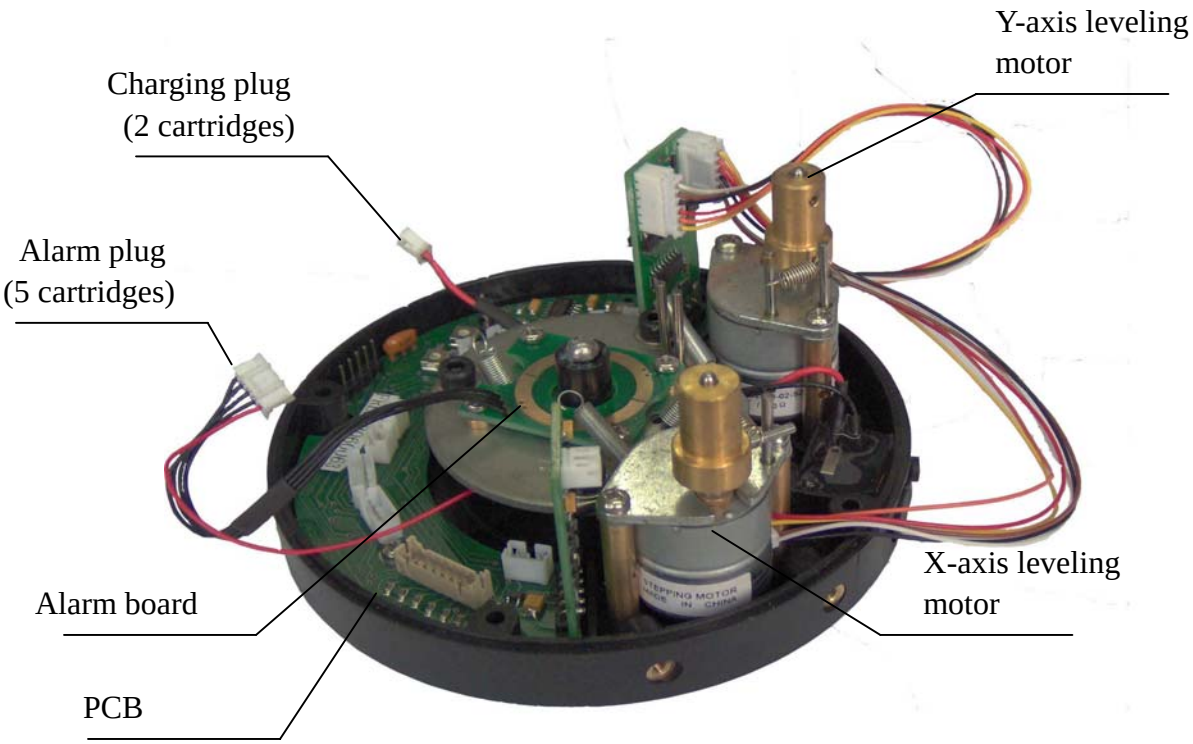
Pendulum

2.1 Top-cover Set

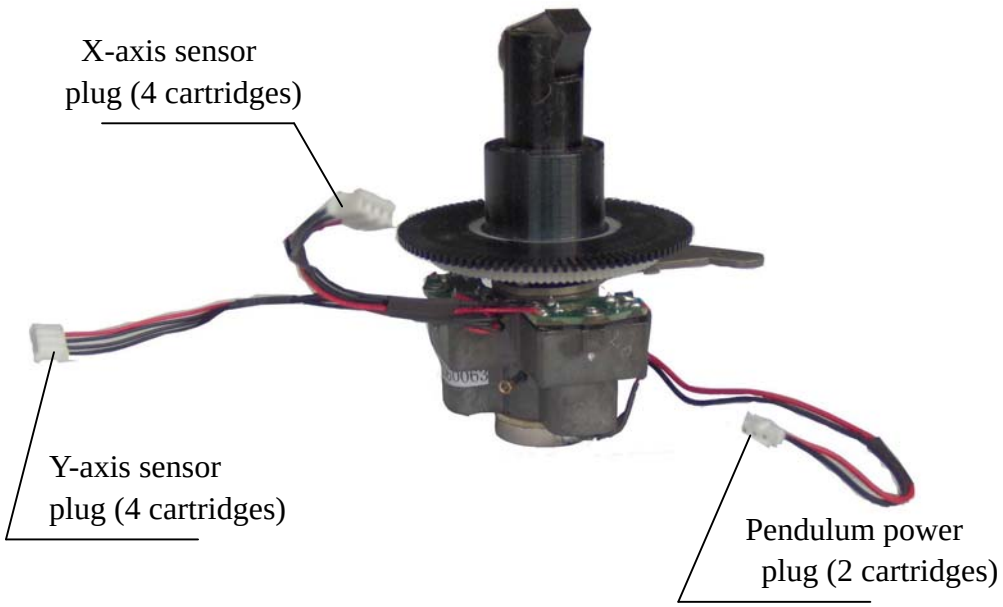
2.2 Shell Set



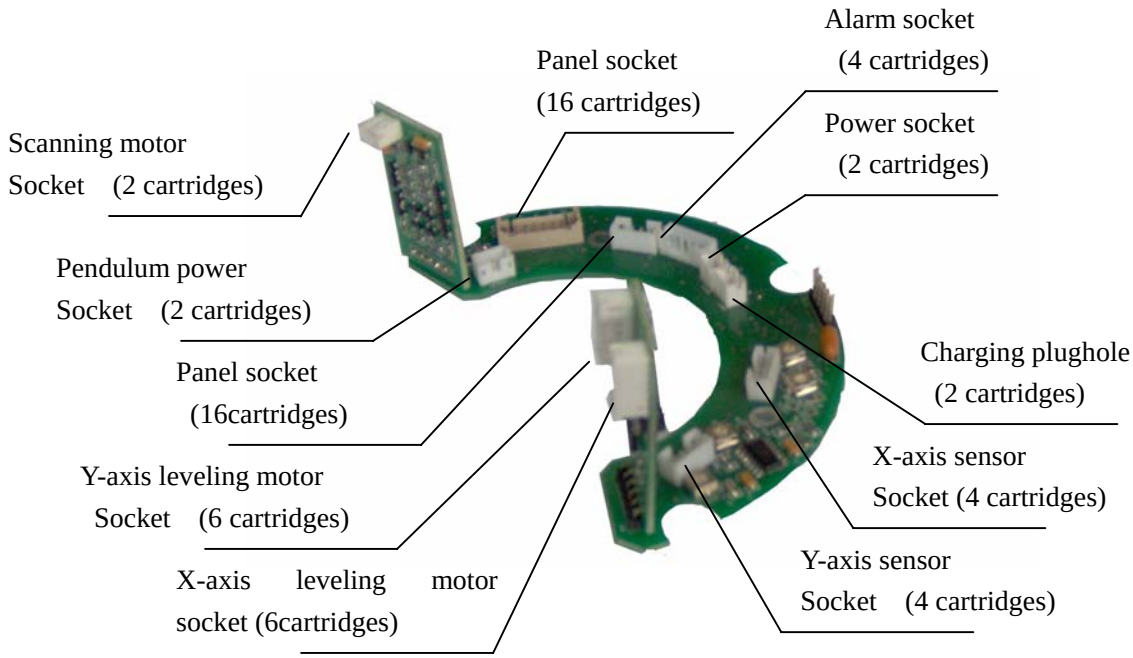
2.3 Underpan Set



2.4 Pendulum

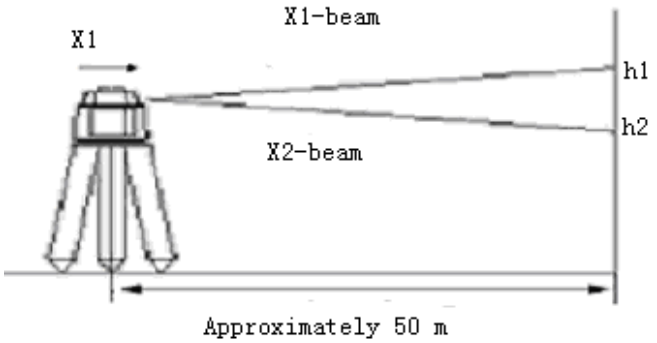


2.5 PCB



3. Instrument Checking

(1) Place the instrument at the point of 50m in front of wall (or set a scaleplate at the point of 50m away from the instrument), and then adjust the level of the base approximately to aim the X1 to the wall (or scaleplate), as depicted below:



(2) After switching on the power, use the detector measuring the h1 of X1-beam on the wall or scaleplate.

(3) Loose the screw of the tripod , and then turn around the instrument 180° to measure the h2 of X2-beam on the wall or scale- plate.

D-value between h1 and h2 ought to be less the 10mm.

(4) Check the Y-beam in the same way.

3.1 Level adjusting

If the D-value between h1 and h2 is more than 10mm, make accuracy adjusting as following steps:

(1) Press the Key ON/OFF when power indicator lights, automatic leveling of instrument starts up.

(2) Press the Key Manual/Automatic for about 3 seconds when X-axis(Mode) indicator winks, the instrument enters mode of X-axis adjusting.

(3) Press the Key "⇧" or "⇩" repeatedly and check the position of laser beam when X-axis indicator

is winking till the D-value between h1 and h2 is less than 10mm.

(4) Press the Key Manual/Automatic again to enter the mode of Y-axis adjusting, when Y-axis(Voltage) indicator wink. Press the Key "⇧" or "⇩" repeatedly and check the position of laser beam when Y-axis indicator is winking till the D-value between h1 and h2 is less than 10mm.

(5) Press the Key "⇧" and "⇩" simultaneously to hold the adjustment when X-axis or Y-axis indicator goes out.

Notices: Once the D-value exceeds the error range that instrument permits, please contact the supplier to repair the instrument.

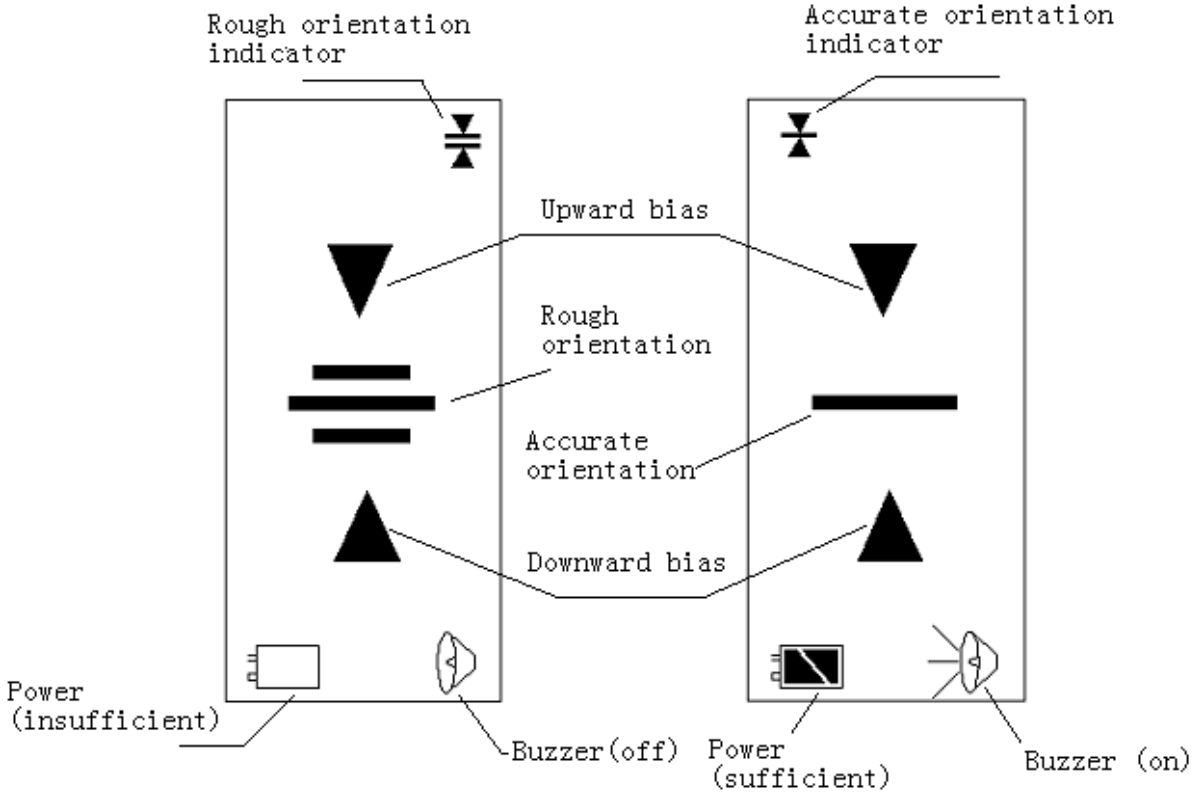
4. Detector

4.1 Principle

The laser beam is received by silicon photocell in detector. After amplifying and judging the signal received, the detector will send out command signal to PCB to control the display of LCD and the buzzer.

States of buzzer: upward bias alarm、downward bias alarm、accurate-orientated alarm (prolonged sound).

Please refer to the information of display of the LCD in the following page.



LCD illustration

5. Malfunctions & Eliminations

A. Failures in starting up

(1) Symptoms:

After pressing the Key ON/OFF, power indicator can't light and also the instrument doesn't start up.

(2) Causes:

a. Poor contact of keys on the panel or panel plug.

b. Poor contact of batteries or power plug, and insufficient power,

c. Troubles of PCB.

(3) Eliminations:

a. Take off the shell, and renew the panel or connect the power plug with PCB well.

b. Take down the cover of battery case to check whether there are some dirt or rust between the spring and spring strip, and clear off them if it is true; Recharge the batteries till power is sufficient and then detach the shell to connect the power plug with PCB well.

c. Detach the shell to change the PCB.

d. Please contact the supplier when the instrument still doesn' t start up after all your effort above.

B. No spinning of laser head.

(1) Symptoms:

The laser beam is being emitted but the laser head doesn't rotate after instrument is power on.

(2) Causes:

a. Center to center distance of gear is not suitable, gearing is abnormal.

b. Troubles of scanning motor.

c. Laser head has touched the optical coupler.

d. Troubles of PCB.

(3) Eliminations:

a. Take off the shell to readjust the center-to-center distance of the gear.

b. Change the scanning motor after taking off the shell.

c. Detach the shell to readjust the space between laser head and optical coupler.

d. Change the PCB.

C. No responses of detector

(1) Symptoms:

Press the Key ON/OFF, the LCD doesn't display.

(2) Causes:

a. Install the batteries according to the wrong electrode.

b. Panel plug drops out.

c. Troubles of PCB.

(3) Eliminations:

a. Take off the cover of battery case to install the batteries correctly.

b. Detach the panel cover of detector to insert the plug again.

c. Please take the detector back to the manufacturer to repair it, if there are some troubles in PCB.

D. No sound of buzzer.

(1) Symptoms:

There is no sound of buzzer after pressing any keys on the panel.

(2) Causes:

a. Buzzer plug drops out.

b. Troubles of PCB.

(3) Eliminations:

a. Connect the buzzer plug with the PCB well.

b. Please take the detector back to the manufacturer to repair it, if there are some troubles in PCB.